Environmental Management System and Green Solutions

Annual Report

Fiscal Year 2012

May 1, 2011 to April 30, 2012



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City of Kansas City, Missouri Environmental Management System and Green Solutions FY12 Annual Report

May 1, 2011 to April 30, 2012

I. Introduction

The City of Kansas City, Mo.'s Administrative Regulation 1-19, Environmental Stewardship, establishes a process for setting annual environmental improvement goals for each department of the City and the annual evaluation of each department's progress in meeting those goals. This report is the annual survey and evaluation for Fiscal Year 2012 (FY12), May 1, 2011 to April 30, 2012.

The City of Kansas City, Mo.'s Administrative Regulation 5-5, Green Solutions and Sustainability, assigns responsibility and sets standards to integrate green solutions and sustainability into City operations and in the City's planning and development processes. This report provides documentation of the City's efforts to incorporate green solutions and sustainability into its programs, projects and policies.

II. Executive Summary

<u>Environmental Compliance Status</u> – City facilities and project sites received nine onsite inspections from environmental regulators in FY12 (similar to FY11). These site inspections resulted in no Notices of Violations (NOVs) and two Letters of Warning issued to the City.

Environmental Inspections and Facility Self-Inspections – In FY12, the Office of Environmental Quality (OEQ) conducted 327 environmental inspections of City facilities for compliance with the standards detailed in the City's Environmental Management System. OEQ identified 229 "opportunities for improvement," which include regulatory compliance issues and "beyond compliance" issues identified to address the City's goal of achieving and maintaining environmental excellence that goes well beyond compliance with applicable regulatory requirements. Of these "opportunities for improvement," 99.6 percent were implemented and completed by the year's end. Departments performed facility self-inspections at 221 facilities during the fiscal year on a weekly, monthly or "other" frequency. The high implementation rate for OEQ inspection recommendations and the frequent and periodic facility self-inspections performed by facility staff provide a reasonable level of assurance that City facilities are being operated in a manner that conforms to the standards in the City's Environmental Management System (EMS).

<u>Environmental and Safety Training</u> – City departments have identified the environmental and safety training needs of 100 percent of full-time City employees. The Environmental Training Plans (ETPs) developed by supervisors are based upon each employee's specific duties and responsibilities. The City delivered 4,999 hours of environmental and safety training to its employees (not including training provided to Police and Fire department employees through

their respective training academies and additional specialized training provided by individual departments, such as continuing education required for certification of water and wastewater treatment plant operators).

<u>Environmental Improvement Goals</u> – The City adopted six environmental improvement goals for FY12. These goals include:

- Goal 1 Improve energy management by increasing energy efficiency in production processes, incorporating energy conservation into facility operations and designs, and using more renewable or sustainable energy resources.
- Goal 2 Demonstrate improvements in preservation and restoration of natural resources and habitats such as wetlands, forests, water bodies and prairies, as well as manage facility properties and buildings to reduce environmental impacts.
- Goal 3 Reduce air emissions from facilities through pollution prevention initiatives and emission control strategies. Reduce air emissions from mobile sources by reducing environmental impacts of shipping and receiving, fleet operations and employee commuting.
- Goal 4 Incorporate green solutions, whenever possible and appropriate, during the planning process into City policies, projects and programs.
- Goal 5 Protect employee health and the environment by ensuring that training requirements for individuals are identified; that training opportunities are made available and are carried out; that training is recorded and tracked; and that training requirements are monitored, revised, and refresher training provided, as appropriate, to maintain competence.
- Goal 6 Create a cleaner City by implementing actions that reduce illegal dumping and improve the City's response to illegal dumping.

<u>Goal Attainment and Green Solutions</u> - Overall, the City implemented and completed many projects geared toward attaining the FY12 environmental improvement goals and incorporating Green Solutions and sustainability into City policies and operations. A few of the highlights for FY12 include:

■ Implementing Ozone Action Plans during four Ozone Alert Days in multiple City departments that resulted in avoiding or postponing 682 vehicle trips. In addition, cars reduced running/idling time by 1,920 hours; avoided or postponed 1,341 refueling events; avoided or postponed 639 hours of small engine use; and traveled more than 30,544 miles using alternatively fueled vehicles.

- Continued implementation of an internal recycling program (paper, aluminum cans, plastic bottles, cardboard) for City facilities that resulted in collection and recycling of 252,772 pounds of materials.
- Construction and/or renovation of several City facilities to LEED Silver standards. At other facilities, energy efficient upgrades to HVAC and lighting systems were made.
- The installation of electric charging stations at a publicly accessed parking facility.
- The development and implementation of an Enterprise Sustainability Platform (ESP), which is receiving international recognition as the new standard in facility management, sustainability and energy management.
- Implementation of a program to make traffic signals more energy efficient by replacing approximately 5,491 existing traffic signal heads with LED lights. All new traffic signals currently being installed contain LED lights.

<u>Conclusions and Recommendations</u> – Concluding the 12th year of implementing the City's Administrative Regulation 1-19 on Environmental Stewardship, the City continued to meet its commitment toward incorporating environmental stewardship and sustainability into all of its organizational activities.

Overall, the City continued to meet its environmental regulatory obligations through implementation of a City-wide Environmental Management System, a proactive facility inspection program, a task-specific employee environmental and safety training program, and the dedication of City employees to incorporate environmental stewardship and sustainability into their job tasks. While working toward maintaining regulatory compliance, City departments and staff have implemented a variety of "beyond compliance" projects and improvements in the pursuit of attaining the FY12 environmental improvement goals and the incorporation of Green Solutions into City business.

Although the City continues to make progress in assuring compliance and attaining its FY12 goals/Green Solutions, the City should continue to make improvements in the following areas:

- Maintaining a state of preparedness for unannounced regulatory inspections, particularly at construction projects;
- Motivating and encouraging employees to complete required environmental and safety training;
- Expanding the identification and use of alternative fuels in operation of the City's fleet vehicles;
- Continuing implementation of the City's Climate Protection Plan;
- Achieving the LEED Gold standard in City renovation and new construction projects;
- Integrating Green Solutions and the concepts of sustainability into all City government operations.

III. Compliance Assurance

FY12 Compliance Status

The City received nine inspections by the Missouri Department of Natural Resources (MDNR) (reference Table 1). This is equal to the number of inspections received in FY11. As a result of this year's inspections, the City received no "Notice of Violations (NOVs)" and two "Letters of Warning."

Table 1. FY12 Regulatory Inspections

| Regulatory Agency | Number of Inspections |
|----------------------------------|-----------------------|
| MDNR – Air Compliance Inspection | 2 |
| MDNR – Environmental Services | 1 |
| MDNR - Hazardous Waste Program | 2 |
| MDNR - Water Pollution Control | 1 |
| MDNR – Public Drinking Water | 1 |
| MDNR – Tanks Compliance Program | 2 |

In addition, as a result of routine self-reported discharge monitoring reports submitted to the regulators, there was one "Letter of Warning" issued to the Water Services Department for exceeding effluent limitations in the Missouri State Operating Permit.

The Water Services Department also had 37 sanitary sewer overflows/bypasses from wastewater treatment plants or their pumping/lift stations, none of which resulted in NOVs being issued to the City. During the calendar year 2011, the City of Kansas City, Mo., experienced 68 dry weather sewage bypasses within the wastewater collection system as compared to 84 reported in 2010. All of the bypasses were cleared and permanent repairs were completed on collapsed lines and damaged structures.

One NOV was issued to the Water Services Department for non-payment of the Missouri State Annual Operating Permit Fee (MS4).

<u>Compliance Assurance Activities – Opportunities for Improvement</u>

In FY12, the Office of Environmental Quality (OEQ) conducted 327 environmental inspections of City facilities for compliance with standards included in the City's Environmental Management System. As a result of these inspections, OEQ identified 229 "opportunities for improvement," of which 228 (99.6 percent) were implemented and completed by year's end. The City implemented 176 opportunities for improvement (76.9 percent) by their scheduled completion date.

A departmental breakout of "Opportunities for Improvement" appears in Table 2:

Table 2. FY12 Opportunities for Improvement, By Department

| Department | Total | Timely | Late | Not Complete | Complete | percent Timely | percent Complete |
|---|-------|--------|------|-----------------|----------|-------------------|---------------------|
| Aviation | 48 | 48 | 0 | 0 | 48 | 100 | 100 |
| Capital Projects | 0 | NA | NA | NA | NA | NA | NA |
| City Auditor | 0 | NA | NA | NA | NA | NA | NA |
| City Clerk | 0 | NA | NA | NA | NA | NA | NA |
| City Council | 0 | NA | NA | NA | NA | NA | NA |
| City Manager | 1 | 1 | 0 | 0 | 1 | 100 | 100 |
| City Planning and Development | 0 | NA | NA | NA | NA | NA | NA |
| Convention and Entertainment Facilities | 14 | 9 | 5 | 0 | 14 | 64.3 | 100 |
| Finance | 0 | NA | NA | NA | NA | NA | NA |
| Fire | 16 | 16 | 0 | 0 | 16 | 100 | 100 |
| General Services | 61 | 36 | 25 | 1 | 60 | 59.0 | 98.4 |
| Health | 0 | NA | NA | NA | NA | NA | NA |
| Housing and Community Development | 0 | NA | NA | NA | NA | NA | NA |
| Human Relations | 0 | NA | NA | NA | NA | NA | NA |
| Human Resources | 0 | NA | NA | NA | NA | NA | NA |
| Information Technology | 1 | 1 | 0 | 0 | 1 | 100 | 100 |
| Law | 0 | NA | NA | NA | NA | NA | NA |
| Mayor's Office | 0 | NA | NA | NA | NA | NA | NA |
| Municipal Court | 0 | NA | NA | NA | NA | NA | NA |
| Neighborhood and Community Services | 4 | 4 | 0 | 0 | 4 | 100 | 100 |
| Parks and Recreation | 32 | 15 | 17 | 0 | 32 | 46.9 | 100 |
| Police | 17 | 13 | 4 | 0 | 17 | 76.5 | 100 |
| Public Works | 18 | 16 | 2 | 0 | 18 | 88.9 | 100 |
| Water Services | 17 | 17 | 0 | 0 | 17 | 100 | 100 |
| TOTAL | 229 | 176 | 53 | 1 | 228 | 76.9 | 99.6 |

It should be noted that the total number of "opportunities for improvement" identified by OEQ environmental inspections increased 20 percent to 229 compared to FY11 (191). In addition, the overall completion rate of these obligations was 99.6 percent and the percentage of items completed by the scheduled completion date decreased from 84.8 percent to 76.9 percent.

This multi-year data is displayed in Table 3:

Table 3. Opportunity for Improvements – Citywide Completion Rates, By Year

| Year | Total | Timely | Late | Not Complete | percent Timely | percent Complete |
|------|-------|--------|------|--------------|-------------------|---------------------|
| FY04 | 455 | 204 | 160 | 94 | 45 | 80 |
| FY05 | 498 | 379 | 78 | 41 | 76 | 92 |
| FY06 | 385 | 291 | 94 | 44 | 76 | 89 |
| FY07 | 496 | 147 | 349 | 90 | 30 | 82 |
| FY08 | 466 | 250 | 216 | 28 | 54 | 94 |
| FY09 | 445 | 309 | 136 | 40 | 69 | 91 |
| FY10 | 406 | 296 | 110 | 19 | 73 | 95 |
| FY11 | 191 | 162 | 29 | 12 | 85 | 94 |
| FY12 | 229 | 176 | 53 | 1 | 77 | 99 |

<u>Compliance Assurance Activities – Self-Inspections</u>

Self-inspections are conducted by facility personnel on a more frequent basis and are designed to quickly identify and correct environmental or safety issues in a timely manner. City departments perform self-inspections during the fiscal year on a weekly, monthly or other specified frequency, as determined for the facility. This year, 221 facilities participated in the self-inspection program, as recommended in the City's EMS. The number of facilities self-inspected by each department and the frequency of those inspections are shown in Table 4:

Table 4. Number of Facilities Performing Self-Inspections, By Department

| Department | Self-Inspections | Weekly | Monthly | Other |
|------------------------------|-------------------------|--------|---------|-------|
| Aviation | 3 | 1 | 2 | |
| City Clerk | 3 | 3 | | |
| Convention and Entertainment | 6 | | | 6 |
| Facilities | | | | |
| Finance | 1 | | | 1 |
| Fire | 34 | | 34 | |
| General Services | 4 | 4 | | |
| Human Resources | 2 | | | 2 |
| Municipal Court | 1 | | 1 | |
| Neighborhood and Community | 1 | | 1 | |
| Services | | | | |
| Parks and Recreation | 50 | | 29 | 21 |
| Police | 19 | | 19 | |
| Public Works | 13 | | 13 | |
| Water Services | 84 | 2 | 27 | 55 |
| Total | 221 | 10 | 126 | 85 |

<u>Compliance Assurance Activities – Asbestos Inspections</u>

The Missouri Department of Natural Resources (MDNR) regulates demolition and renovation projects involving institutional, commercial, public, industrial and residential structures through the National Emissions Standard for Hazardous Air Pollutants (the asbestos NESHAP). This regulation contains requirements for asbestos inspection, project notification, emission control procedures for asbestos removal, and asbestos disposal.

To assist the Capital Projects Department (CPD) and the Neighborhood and Community Services Department's (NCS) Dangerous Buildings and Vacant Properties Division to comply with the asbestos NESHAP regulation and reduce program costs, OEQ performed asbestos inspections of buildings prior to their demolition. Reports from these inspections were used by the demolition and abatement contractors to identify asbestos-containing building materials for removal prior to demolition. In addition, the reports include a list of other hazardous materials that must be removed from the property prior to demolition. Other hazardous materials may include household hazardous waste from residential structures or hazardous waste from commercial structures. In some cases, abandoned petroleum storage tanks are identified and removed as part of the demolition project.

In FY12, OEQ performed a total 158 asbestos inspections (85 for NCS, 25 for CPD, 31 for EnergyWorks KC, 13 for Housing and four for other departments) and submitted reports for the proper abatement and disposal of asbestos containing building materials. This is an increase of 1 percent compared to the number of inspections conducted in FY11.

<u>Compliance Assurance Activities – Hazardous Materials Disposal Program</u>

Many City-owned and operated facilities generate small quantities of hazardous materials, including hazardous wastes. The accumulation and storage of these wastes may subject the City to increased regulation and administrative costs. To assist City facilities in maintaining a minimal level of regulatory risk, OEQ, in cooperation with the Water Services Department's Household Hazardous Waste Center, offers a low-cost disposal program. This program allows waste materials to be transported from City facilities to the Household Hazardous Waste Center for recycling or disposal.

In FY12, the program removed 10,000 pounds of hazardous materials from City facilities. These materials were either recycled or properly disposed.

Environmental Training

The City's environmental training efforts consist of three major components:

- Identifying training needs Preparation of Environmental Training Plans (ETPs) for City staff
- Training delivery
- Records management

ETPs are used by supervisors to plan and determine which courses are either required (by federal, state, or local laws) or recommended (good management practices) for employees to perform their jobs. City supervisors have completed 4,458 (100 percent) of the ETPs for their full-time, permanent employees.

In FY12, 4,999 hours of training were completed by City employees. Training provided to Fire Department and Police Department employees through their respective training academies is not included in this report, nor is additional specialized training provided by individual departments, such as continuing education required for certification of water and wastewater treatment plant operators. Table 5 summarizes training information provided by OEQ for the City departments:

Table 5. FY12 Environmental and Safety Training, By Department

| Department | # Employees | # ETPs | percent ETPs | Hours Completed |
|-------------------------------|-------------|--------|-----------------|--------------------|
| Aviation | 438 | 438 | 100 | 779 |
| Capital Projects Department | 30 | 30 | 100 | 87 |
| City Auditor | 12 | 12 | 100 | 19 |
| | 5 | 5 | 100 | 0 |
| City Clerk | 37 | | | |
| City Council & Mayor's Office | | 37 | 100 | 32 |
| City Manager's Office | 67 | 67 | 100 | 139 |
| City Planning and Development | 133 | 133 | 100 | 36 |
| Convention and Entertainment | 68 | 68 | 100 | 150 |
| Facilities | | | | |
| Finance | 105 | 105 | 100 | 53 |
| Fire | 1306 | 1306 | 100 | 59 |
| General Services | 160 | 160 | 100 | 343 |
| Health | 161 | 161 | 100 | 86 |
| Housing | 28 | 28 | 100 | 18 |
| Human Relations | 27 | 27 | 100 | 27 |
| Human Resources | 40 | 40 | 100 | 25 |
| Information Technology | 102 | 102 | 100 | 14 |
| Law | 67 | 67 | 100 | 16 |
| Municipal Court | 63 | 63 | 100 | 0 |
| Neighborhood and Community | 181 | 181 | 100 | 394 |
| Services | | | | |
| Parks and Recreation | 259 | 259 | 100 | 382 |
| Police | | | 100 | |
| Public Works | 384 | 384 | 100 | 1,209 |
| Water Services | 785 | 785 | 100 | 1,131 |
| Total | 4,458 | 4,458 | 100 | 4,999 |

IV. Environmental Improvement Goals/Green Solutions

Each fiscal year, the City adopts Annual Environmental Improvement Goals to focus its environmental improvement efforts. In addition, based upon the Green Solutions Policy adopted by the Mayor and City Council, City departments are incorporating Green Solutions and sustainability into their policies, projects and programs. The following is a compilation of the City's efforts toward accomplishing these goals:

Goal 1 – Improve energy management by increasing energy efficiency in production processes, incorporating energy conservation into facility operations and designs, and using more renewable or sustainable energy resources.

The **Aviation Department** reduced utility consumption at the Overhaul Base by replacing or retrofitting about one half of the lighting fixtures at the Base, a \$1.2 million project that is about 35 percent complete. In addition, the department completed repair and replacement of the chilled water distribution system at KCI, which will save energy and water resources.

Future plans for the Aviation Department include:

- Replacing and downsizing the gas-fed boiler used to generate processed steam for heating and processes. The project is projected to be about \$3 million with an estimated yearly savings of about 20 percent. The project is expected to be completed by late fall of 2013.
- Replacing and downsizing the electric driven chiller used for air conditioning at the Overhaul Base. The project is currently at the engineering study stage and is projected to reduce electricity consumption by about 20 percent when completed in 2014.

The Capital Projects Department (CPD) took several actions to achieve this goal:

- Produced duplexed and black and white copies whenever possible;
- Purchased 30 percent recycled copy paper;
- Continued "lights out unless necessary" procedure on Ozone Alert Days;
- Turned computers off overnight; and
- Purchased a hot water appliance to avoid running water through tap to get hot.

The **City Auditor's Office** practiced energy conservation by turning off overhead lights in unused areas, using the energy saver feature on the office copier, and followed ITD guidance on shutting down the computers at night.

The **City Clerk's Office** is moving towards a "paperless" meeting process, which will save energy and cost.

The Conventions and Entertainment Facilities Department is upgrading its building automation system. The upgraded system will provide adequate temperature conditions while minimizing energy consumption.

The **Fire Department** - A new Fire Station 39 was built at 11100 E. 47th St. to replace the existing Fire Station located at 10003 E. 47th St., which was built in 1960. The old station was a Butler-style structure and was equipped with an energy inefficient HVAC system and drafty single pane windows. Daylight could be seen through the rusted openings throughout the metal structure. The new structure is LEED-certified and has incorporated the latest energy efficient technology available.

The **General Services Department** took several actions to achieve this goal:

- Health Facility Implemented projects to repair variable air volume boxes (VAV) throughout the building. This improves the reliability of the system and utilizes less energy while increasing occupant comfort. To date, the facility has experienced a 42 percent reduction in energy consumed, equating to a 25 percent cost reduction in electrical consumption.
- City Hall Results of energy conservation efforts at City Hall have led to a 33 percent reduction in energy consumed, equating to a 23 percent cost reduction in utility consumption.
- Mohart Focus Center Facility Services recently completed a project to add the building to the Enterprise Sustainability Platform (ESP) and the Metasys extended architecture building automation. Facility Services can now monitor the operations of the boilers, chiller, air handlers, fan coil units and pumps. In addition, the air handlers can be put on an operations schedule, thereby reducing energy consumption. The project is entering its final phases and has currently led to a 49 percent reduction in energy consumed, which equates to a 30 percent cost reduction in electrical consumption.
- 18th and Vine Facility Facility Services is currently working on the implementation of ESP at this facility. This project is entering its initial phases and has currently led to a 38 percent reduction in energy consumed, which equates to a 39 percent cost reduction in electrical consumption over the last six months.
- Kansas City Museum The museum completed a project to replace the heating and cooling equipment for the Carriage House and Corinthian Hall buildings on the complex. Staff installed a central heating hot water system with three high-efficiency boilers and variable speed pumps. They also installed a central chilled water cooling system with a cooling tower, three chillers, variable speed pumps and multi-zone air handlers. A building automation system was also part of the project. Utility costs may increase at this site as some of the sites did not have appropriate HVAC. However, the new system is using the latest technologies to provide the museum with quality HVAC in an energy-efficient manner.
- Various facilities Staff replaced fluorescent lamps with energy-saving LED lamps, which has extended service, in some examples, four to five times over what was previously installed and further reduced energy consumption.

• The General Services Department has a total of six used oil powered heaters, fueled by two 8,000 gallon storage tanks, in use in the Fleet Division's vehicle maintenance areas. This allows for safe disposal while replacing the need for using traditional heating methods during the winter months. Approximately 10,472 gallons of used oil were burned in place of heating oil in FY12.

The **Health Department's** Environmental Health Services fleet of inspection vehicles includes 32 energy efficient CNG vehicles (95 percent of department fleet).

The Housing and Community Development Department:

- Implemented Resolution 100245, "No Idling Zone," to reduce vehicle emissions, reduce engine wear and save fuel;
- Purchased Energy Star rated products for use in the Home Weatherization Program; and
- Used water-based paints in the Paint Program.

The **Human Resources Department** turned off lights and copiers to conserve energy. Office staff recycled paper and used paper made from recycled post-consumer content in network printers, copiers and fax machines.

The **Information Technology Department** worked toward this goal by:

- Replacing PCs with new products that are ENERGY STAR-rated products; and
- Replaced an old HVAC unit in the data center.

The **Law Department** encouraged employees to conserve energy by turning lights, fans and office equipment off when not in use. Many employees made use of the available natural light when possible, in lieu of artificial light.

The **Parks and Recreation Department's** Facility Maintenance Division replaced outdated and missing lights in JC Nichols Fountain with energy-efficient LED lighting, saving an estimated 50 percent or more in electricity. This is the third major fountain now converted to LED lighting.

The **Police Department** remains dedicated to ensuring that all newly constructed buildings are LEED-certified. Additionally, all new projects that exceed 5,000 square feet will also be constructed to LEED Gold standard. This has included the newly constructed Metro Patrol Station, current construction of South Patrol/SOD complex, and the upcoming Police Headquarters renovations.

The **Public Works Departments'** Parking Services Division installed two electric vehicle charging stations in the Arts District Garage located at the Kauffman Center for Performing Arts. The City partnered with Coulomb's ChargePoint Network and LilyPad EV to install the charging stations. The two charging stations expand the growing number of Coulomb Charging Stations to 17 in the Kansas City Metro Area.

The Street and Traffic Division implemented a program to make traffic signals more energy efficient by replacing approximately 5,491 existing traffic signal heads with LED lights. All new traffic signals currently being installed contain LED lights.

Public Works performed renovation to approximately 12,772 square feet for the Traffic Operations Center. The goal during renovations was to achieve an 80 percent or better diversion of construction waste from the landfills, improve indoor air quality, and increase energy efficiency. Renovations were performed in accordance to LEED standards and an application for LEED Silver certification has been submitted for consideration.

Public Works implemented the coordination of 269 traffic signal operations to better improve the movement of traffic along congested roads. Coordination of traffic signals reduces driver travel times, lowers vehicle emissions, and conserves fuel by improving the gas mileage on vehicles. It can also play a vital role in quality of life issues, from the daily commute, to running a simple errand, or even sustaining vibrant commerce.

Goal 2 – Demonstrate improvements in preservation and restoration of natural resources and habitats such as wetlands, forests, water bodies and prairies, as well as manage facility properties and buildings to reduce environmental impacts.

Internal Recycling Program – City departments continued their participation in the internal recycling program. In general, the facilities that participate in the program have their recyclables (paper, aluminum cans, plastic and cardboard) collected by Batliner. Batliner pays the City for the materials, which allows the City to purchase additional bins and containers. This has allowed the City to gradually increase the capacity of the program and, in the process, identify additional opportunities for the City to focus its future recycling efforts.

City facilities recycled a total of 252,772 pounds in FY12.

Additional activities completed in the pursuit of goal 2 include:

The Capital Projects Department (CPD) purchased compostable cups. The used cups are collected and delivered to a composting facility.

The City Auditor's Office reduced its environmental impact by minimizing the use of copy and printing paper. Filtered water was provided rather than bottled water. The department also participated in the City's internal recycling program, recycling newspapers, magazines, copy paper, aluminum cans and phone books. Toner cartridges for the office printers are also returned to the vendor for refilling.

The City Clerk's Office is using recycled paper products.

The **Fire Department** incorporated proper storm water management during the construction of Fire Station 39. A retention pond has been installed on the west side of the parking lot to capture runoff from the property.

The **General Services Department** completed the following actions to achieve this goal:

- MSC has recycled more than 2,000 fluorescent lamps this year and performed quarterly self-inspections of four oil-filled electrical transformers.
- In FY12, the General Services Department's Fleet Division recapped 173 old tires, gaining additional life from the materials.

Municipal Court adopted a new case management system that is essentially paperless. The system includes:

- A paperless parking ticket docket;
- An e-filing system for attorneys to send motions;
- A new electronic compliance form for cashiers that replaces a handwritten form;
- Transition to an all-electronic reporting system that eliminates the use of more than 200 green bar reports;
- Development and distribution of an electronic case summary card; and
- Discontinuation of sending copies of paper tickets;

Neighborhood and Community Services had 14 employees who report directly to offsite work locations, which are centralized to the work zones for those employees. This saved hundreds of hours of commute time and more than 1,000 actual miles driven in City vehicles.

Parks and Recreation crews continue to maintain, improve and protect thousands of acres of land that contribute to reducing storm water runoff and water pollution throughout the city. These properties include: more than 400 acres in the reduced mowing program; more than 289 acres of restored and remnant prairies and glade habitat; and more than 6,500 acres protected as woodlands throughout the parks system. Taller grasses, deep-rooted native plants and increased tree cover in these areas act to slow water runoff, filter more pollutants from the water, and increase infiltration into the soils. The Parks and Recreation Department's Conservation Corps now maintains 20 rain gardens, swales and butterfly gardens on 26 park properties. Additionally, wetlands are protected near the Lake of the Woods.

Through a Tree Resource Improvement and Maintenance (TRIM) grant, funding was provided for planting 46 new street trees, replacing an equal number of declining Ash trees that were at risk for infestation by Emerald Ash Borer. The declining trees were removed as a pre-emptive measure and a wider variety of replacement trees was planted. The Forestry Division also planted 694 other trees on streets and in parks throughout the city during the fiscal year.

Volunteers cleared a half acre of invasive honeysuckle and planted 300 trees during the Blue River Cleanup in April 2012.

Best Management Practices (BMPs) and environmental policies and procedures have been adopted at the department's five golf courses. These BMPs include: reducing chemical usage and recording treatment effectiveness; training maintenance staff in Integrated Pest Management strategies and chemical handling; establishing "no spray zones" and buffers around water features and other environmentally sensitive areas; selecting pest-resistant, stress-tolerant turf and ornamental native plants to reduce the need for chemicals and water, and to support wildlife.

Shoal Creek Golf Course has received certification through the Audubon Sanctuary Program, a cooperative effort between the US Golf Association and Audubon International. This program "promotes ecologically sound land management and conservation of natural resources." Golf courses qualify by fulfilling requirements in six categories: Environmental Planning; Wildlife and Habitat Management; Outreach and Education; Chemical Use Reduction and Safety; Water Conservation; and Water Quality Management.

The **Police Department** installed native or ornamental grasses and plantings at newly-constructed police facilities. Additional use of such landscaping may be considered at future facilities.

The **Public Works Department** used recycled asphalt to resurface approximately 253 lane miles of roadway. Walkability plays an important role in a sustainable community and the department increased the City's walkability factor by replacing approximately 12 miles of existing sidewalk. Through partnerships with Solid Waste Division, Bridging The Gap hosts monthly rain-barrel workshops at City-sponsored recycling centers. All new traffic signs being installed by Public Works are being placed away from trees to prevent future tree trimming and/or removal in order to preserve our natural habitats.

The **Water Services Department** took several actions to achieve this goal:

Blue River

- 1. Blue River 53rd to 63rd Street Reach The construction of stream check dams was completed in December 2011. This modified project replaced the original project to construct a large concrete Grade Control Structure (GCS), saving acres of trees and \$20 million. The check dams have an added benefit of serving as a fish resting place promoting increased fish population.
- 2. Blue River Mitigation Project The use of the in stream featured in the 53rd to 63rd Street Channel Reach in lieu of a single large concrete GCS also eliminated the need for a berm system planned for the historical Byrams Ford Civil War battlefield site. Instead, the site was restored by removing concrete, utilities and abandoned rail lines, and then planting buffalo grass and shrubs. The restored area will be added to the City's Park System featuring the historic battlefield in partnership with the Monet Fund and Civil War Roundtable. The

project also constructed a gravel maintenance path that also serves as a trail in Swope Park from 63rd Street to the Swope Park pool.

3. *Blue River Greenway Confluence Study* – In conjunction with Vireo and the Corps of Engineers, Waterways developed a plan to restore habitat and enhance the natural resources and water quality in the planning area. The study plan also identifies opportunities to incorporate recreational features related to habitat restoration.

Dodson

Progress in the midsection of the Blue River between Bannister and Bruce R. Watkins continues, with the restoration of City property by the removal of concrete foundations and demolition debris.

Turkey Creek

Over the past year, the Turkey Creek Flood Damage Reduction project added native trees, shrubs and grasses atop the levee, while maintaining the trail.

Brush Creek

Brush Creek Feasibility Study Watershed Environmental Model – In February 2012, the Corps of Engineers, along with technical experts from Kansas and Missouri, finalized an environmental model of Brush Creek called UWIM (Urban Watershed Integrity Model). The model makes use of the Quality Habitat Evaluation Index developed by Ohio EPA to evaluate habitat design for efficiency and effectiveness as habitat restoration, flood risk management and recreation. Evaluation of two different plans for the bi-state reach of Brush Creek indicates these plans would double the habitat units from current conditions. The Waterways Division plans to use the model as conceptual planning continues in the Watershed along the Bruce R. Watkins and Town Fork Creek.

In addition to the above, the Water Services Department made environmentally-preferred purchases and recycled materials as follows:

| Purchased Products made of Recycled Materials Ductile Pipe Hydrants Manhole Rings and Covers Copper | Weight (lbs.) 280,983 111,000 16,970 17,869 |
|---|---|
| Purchased Chemical By-products Carbon Dioxide Fluoride (HFS) | Weight (lbs.) 118,373,800 981,200 |
| Recycled Waste Product through HHW Used Motor Oil (burned on site) Batteries Antifreeze Fluorescent Bulbs | Weight (lbs.) 36,820 49,667 4,339 1,475 |
| Scrap Metal | 32,620 |

| Waste Recovered Through HHW Swap Shop | Weight (lbs.) |
|---------------------------------------|---------------|
| Paint | 92,606 |
| Automotive Oils | 1,074 |
| Bulk Fuel Oil | 24 |

Goal 3 – Reduce air emissions from facilities through pollution prevention initiatives and emission control strategies. Reduce air emissions from mobile sources by reducing environmental impacts of shipping and receiving, fleet operations and employee commuting.

The **Ozone Action Policy** – Prior to the beginning of ozone season, the city manager issued an Ozone Action Policy (OAP), which required each City department to develop and implement an Ozone Action Plan to reduce ozone generating activities on Ozone Alert Days. The Office of Environmental Quality (OEQ) is charged with coordinating the City's ozone reduction efforts annually and with compiling and reporting citywide achievements. The Ozone Action Policy requires each department to appoint an Ozone Alert Coordinator (OAC) who is responsible for implementing the OAP, including reporting plans and achievements.

Ozone Alert Days are typically forecast the day before an ozone alert occurs. On Ozone Alert Days, City departments are encouraged to follow the City of Kansas City, Mo., Ozone Reduction Measures (Ozone Action Plan) and Suggested Clean Air Actions for Business and Governments outlined by the Mid-America Regional Council (MARC). Those measures include, but are not limited to,: notifying employees of Ozone Alert Days, use of flextime by employees to reduce traffic congestion, postponement of operations and maintenance activities, preventing cooking fires, carpooling, and using alternatively-fueled vehicles. There were four Ozone Alert Days forecast during the season.

During the FY12 Ozone season (April 1, 2011 to Oct. 31, 2011), the City avoided or postponed 682 vehicle trips. In addition, cars reduced running/idling time by 1,920 hours; avoided or postponed 1,341 refueling events; avoided or postponed 639 hours of small engine use; and traveled more than 30,544 miles using alternatively fueled vehicles. In facilities, building thermostats were set to warmer temperatures 346 times in buildings during Ozone Alert Days.

Other activities undertaken by City departments during the Ozone season or fiscal year include:

- 61 lane closures were postponed;
- 1,123 employees carpooled or used the bus during Ozone Alert Days; and
- Several employees participated in the "Green Commute Challenge" program sponsored by the Mid-America Regional Council (MARC). Kansas City, Mo., employees who participated in the program were responsible for reducing miles driven during ozone season by more than 5,692 miles. This resulted in 5,476 pounds of ozone forming and greenhouse gas emissions prevented.

Kansas City's **Climate Protection Planning** process began in 2005 when former Mayor Kay Barnes signed the U.S. Conference of Mayor's Climate Protection Agreement. In August 2006, the City Council passed Resolution 060777 directing the city manager to undertake a Climate Protection Planning process. The purpose of the process was to develop a baseline inventory of greenhouse gas emissions, establish a greenhouse gas (GHG) emissions reduction goal and prepare an action plan to achieve the goal.

In September 2006, Mayor Barnes appointed 11 community leaders to the City's Climate Protection Plan Steering Committee. The Steering Committee was charged with overseeing the planning process, establishing a GHG reduction goal, and making recommendations for actions to be included in the City's plan.

Phase 1 of the climate protection planning process began in December 2006 with the establishment of four large work groups comprising more than 80 community volunteers. The four work groups were created to develop suggested action plans and make recommendations to the Steering Committee in specific areas: Energy, Transportation, Carbon Offsets and Waste Management, and Policy and Outreach. The work groups were comprised of a broad cross-section of the community, including government, business, non-profits, neighborhoods, environmental groups, planning organizations and the City's Environmental Management Commission.

In concert with City staff and facilitators, the work groups used year 2000 baseline inventory of GHG emissions and the update for year 2005, in addition to information regarding existing City activities and regional initiatives that had already achieved GHG reductions. The inventory revealed that, from 2000 to 2005, City government had reduced GHG emissions from its operations by 6.8 percent while community-wide emissions had increased by 3.8 percent.

A set of 55 consensus GHG reduction measures were developed by the work groups, in Phase 1 and Phase 2 of the planning process, and presented to the Steering Committee. The Steering Committee unanimously adopted all of the recommendations and forwarded the Climate Protection Plan to the Mayor and City Council. On July 24, 2008, the City Council unanimously approved Resolution 080754, accepting six policy recommendations of the Climate Protection Plan Steering Committee:

- 1. Make climate protection/GHG reduction a key factor in all decisions and actions by the City;
- 2. Adopt the 55 greenhouse gas emission reduction measures in the Climate Protection Plan as a statement of intent and strategy, while providing the City administration with flexibility to implement them in a timely and workable manner;
- 3. Reduce GHG emissions from City government operations by 30 percent below 2000 levels by 2020;

- 4. Reduce community-wide greenhouse gas emissions in Kansas City, Mo., by 30 percent below 2000 levels by 2020;
- 5. Reduce community-wide greenhouse gas emissions by 80 percent below year 2000 levels by 2050 and focus our long-term outlook on being a climate-neutral Kansas City; and
- 6. Continue the Climate Protection Steering Committee as an ongoing oversight entity for implementation of Kansas City's Climate Protection Plan.

During the fiscal year, City staff implemented a wide range of programs to put into practice the policies adopted in the Climate Protection Plan, including:

- 1. Continued implementation of a grant from the U.S. Department of Energy, in the amount of \$4,823,200, for energy efficiency improvements for various City facilities and policies, including:
 - Constructed and opened the Blue River Athletic Field Trail, connecting two major bike/pedestrian trail segments;
 - Modified the City's Development Code to reduce barriers and encourage development reflecting greater transportation efficiency, and other energy efficiency and renewable energy opportunities for our homes and businesses;
 - Continued participation in the Regional Energy Efficiency and Conservation Strategy (REECS) group to address energy codes and related policies in the metropolitan region. The REECS group, which included 11 jurisdictions in the region, continued to meet and several of the jurisdictions, including Overland Park and Kansas City, Mo., adopted the most advanced energy efficiency code for construction or renovation of buildings;
 - Completed most of the planned energy efficiency upgrades and renewable energy applications to the City Hall complex of buildings and to the Health Department. For example, Wolf Garage lighting was upgraded to LED, all equipment motor drives were updated, solar water heating was added to City Hall and the Health Department, and solar panels and wind turbines were added on the top floor of Wolf Garage; the project was extended to provide for purchase and installation of LED lights for the common areas of City Hall; a new software platform (ESP) was installed that allows Facility Management to track energy use and savings in real time.
 - Completed the installation and implementation of personal computer power management software that shuts down computer equipment in typical nonbusiness hours; a new software platform was installed that allows IT to track energy use and savings in real time.
 - Completed conversion of the remaining traffic and pedestrian signals from incandescent to LED lighting; and
 - Completed construction of a traffic signal synchronization center (also known as the Traffic Operations Center).

- 2. Implemented a \$20 million grant award from the U.S. Department of Energy to improve the energy efficiency of buildings community-wide, to create green jobs opportunities, and to transform the energy efficiency market in this region. The grant provides for or facilitates:
 - low interest loans and interest rate reductions for homes and businesses to pay for energy efficiency improvements
 - incentives for lenders to make loans for energy efficiency improvements;
 - rebates for home and business owners for energy efficiency analyses and for purchase of ENERGY STAR® rated appliances;
 - creation of various grants for water efficiency improvements in homes and businesses including a rebate for high efficiency, water saving toilets;
 - creation of a green business incubator and office space and community meeting space in the Green Impact Zone;
 - creation of a program for deconstruction of buildings rather than the traditional demolition approach in order to save the embodied energy in building materials, reduce construction materials sent to landfills, and create non-traditional workforce opportunities;
 - provision of small grants to neighborhoods for neighborhood-based energy efficiency projects;
 - provision of a grant to the developers for adaptive renovation of the Bancroft School, in the Green Impact Zone, to affordable living facilities targeting achievement of LEED-Platinum standards at a minimum;
 - creation of a water conservation program with a dual focus of (1) identifying leaks in the City's water infrastructure that drive up water bills through excess consumption of energy for pumping and for treatment of water and waste water, (2) public education about water conservation plus materials for homes and businesses that help decrease overall water use, and (3) installation of rain barrels and rain gardens;
 - Identification of existing policies, or lack of adequate policies, which inhibit wider reliance on energy efficiency improvements and renewable energy;
 - Grants for creation of workforce development projects and for extension of exemplary projects in energy efficiency; 11 projects were funded and have been implemented;
- Enhancement and extension of public education efforts in the region promoting energy and water efficiency; and
- Codifying lessons learned in the Green Impact Zone for application, as feasible, in other neighborhoods in the region.
- 3. Continued the partnership with Mid-America Regional Council to inform residents of the benefits of eliminating vehicle engine idling as a pocketbook issue in reducing wasted gasoline, as an environmental issue in reducing greenhouse gas emissions, and as a public health issue in, for example, reducing harmful fumes breathed by children at schools.

- 4. Continued work with the Missouri University of Science and Technology and Smith Electric Vehicles to introduce 100 percent plug-in electric vehicles to the City's fleet of alternative fuel vehicles;
- 5. Continued and expanded the Heartland Sustainability Directors Network, which was created to share experiences and best practices among local government sustainability staff in Missouri, Kansas, Iowa, Nebraska, Oklahoma and North Dakota.
- 6. Obtained a 100 percent electric Ford Transit Connect for use by City staff;
- 7. Joined the region-wide Plug-In Readiness Task Force to identify and eliminate barriers to widespread use of plug-in electric vehicles, to identify policies needed to support electric vehicles in this market, and to make electric vehicles a viable alternative choice; and
- 8. Hosted the first downtown Energy Fair highlighting energy efficiency and renewable energy activities and projects of the City and other programs in Kansas City.

Additional activities completed in the pursuit of goal 3 include:

The **Aviation Department** reduced greenhouse gases by replacing and downsizing the gas fed boiler used to generate processed steam for heating and processes at the overhaul base.

The **Capital Projects Department** (**CPD**) took actions to achieve this goal:

- Continued to implement a vehicle idling policy; and
- Completed regular preventive maintenance on the department's vehicles.

The **City Auditor's Office** operated in accordance with its Ozone Policy, which encourages participation in ozone reduction activities and discourages non-essential driving to complete audit assignments. During ozone season, staff structured their work hours to avoid rush hour commuting. Staff received email notices of Ozone Alert Days and was encouraged to use alternative transportation. The department also continued to promote the use of public transportation for employee commuting.

The **Fire Department** has a detailed Ozone Action Policy that is reviewed, revised and reissued annually to coincide with the ozone season. That policy directs a number of specific actions to reduce emissions and is announced to all personnel at shift change on alert days. Progress is systematically reported as required by City directives.

The **General Services Department** took several actions to achieve this goal:

- The Central Fleet Division oversees a fleet that includes 285 Compressed Natural Gas (CNG) vehicles, 45 pure electric vehicles, five propane powered and 13 hybrid vehicles. All of these vehicles help to reduce the amount of environmentally harmful air emissions produced in the performance of the City's daily tasks.
- A total of 239,075 gallons of fuel was displaced through the use of alternative fuel vehicles.
- The Central Fleet Division used 23.5 gallons of low VOC (volatile organic compound) paint in its operations. The levels of VOCs in the paints used were below industry standards; and
- The Central Fleet Division recycled used anti-freeze, batteries, scrap metal, catalytic converters, excess used oil, and tires that could not be recapped.

The **Health Department** completed several actions:

- Bus stop The department joined with KCATA to create a permanent bus stop adjacent to the Troost Avenue entry to the facility. This addition provides opportunities for patients, visitors and staff to take advantage of transit service and reduce vehicular traffic.
- Idle-Free Zone The department posted idle-free zone signs at the facility's point of entry and loading dock.
- Air Quality Program The department monitors air quality in Kansas City, conducting permitting, monitoring inspections, and responding to complaints of violations. Vigilant activity has helped to minimize air pollutants emitted.
- Car Pool Policy The department has created a car pool policy and has provided dedicated parking spaces for staff who car pool.
- Ozone Action Plan Supervisors have been encouraged to adjust staff work schedules
 during the peak ozone season to lessen the impact of automobile idling during peak
 vehicle use times. The plan also calls for refueling vehicles only after 2 p.m. on ozone
 alert days, and encourages staff to do the same with personal vehicles.
- Bus Route 54, along 85th Street The department worked in partnership with KCATA and neighborhood associations to gain approval of an extension of Route 54 to run from Paseo to Ward Parkway. The new addition provides improved transit availability to area residents and encourages mass transit use instead of personal vehicles.
- Active Living KC Walking School Bus groups the Health Department, along with Public Works, has created walking school bus groups, as part of physical activity and nutrition programming in the Hickman Mills area. The program reduces the number of vehicles on the roadways and lessens air pollution.
- Bike Safety The Safety Street Program provides bike safety training to help increase the number of bikers and reduce the numbers of vehicles on the streets.

The **Housing and Community Development** followed Resolution 100245 "No Idling Zone" to reduce vehicle emissions, reduce engine wear and save fuel.

The **Information Technology Department** provided flexible schedules for bus riders or car poolers. The department also encourages carpooling for off-site meetings.

Law Department employees chose to teleconference, when possible, instead of having in person meetings. This saved on vehicle trips and fuel consumption and is particularly important when the ozone level is elevated. In addition, many employees utilized mass/public transit or participated in carpool groups. The department ordered supplies in bulk to minimize delivery vehicle trips and emissions.

Neighborhood and Community Services enforced a "no idling policy" for Animal Control and the Tow Lot divisions to reduce vehicle emissions. Staff was encouraged to carpool to meetings, training classes or group activities when appropriate. During Ozone Alert Days, e-conferencing and telecommuting were strongly encouraged, and fueling activities were delayed until late afternoon or early evening.

The **Parks and Recreation Department** continued and expanded its Reduced Mowing Program in response both to budget constraints and the City's increased environmental concerns. When the program started in 2009, Parks and Recreation began setting aside strategic expanses of open land that were formerly mowed. This program originally resulted in 352 fewer acres being mowed, consuming less gasoline and reducing emissions throughout the mowing season. In FY12, the program encompassed more than 400 acres.

The Parks and Recreation Department officially adopted its Ozone Reduction Action Policy in 2011. A significant element in this policy is not permitting any mowing on Orange Ozone Alert days, except with electric or CNG mowers or emergency mowing. This includes both department and contract mowing. Use of gas-powered small machinery is also avoided for the day.

In addition to the two CNG pool vehicles Parks Administration has had for several years, each of the three Regional Maintenance Divisions now has two CNG mowers and a CNG 1-ton truck. The Facility Maintenance Division now has an electric lift truck and the Forestry Operations Division has a hybrid lift truck with an electric lift.

Commuter-level trails were constructed or extended on Blue River, Brush Creek, Indian Creek and Town Fork Creek Greenway, expanding the City's network of bicycle routes for alternative commuting as well as recreation.

The **Public Works Department,** in collaboration with the City Fleet, purchased three bicycles, re-establishing the "Go Green" initiative. This program encourages City employees to check out a bicycle to use instead of an automobile for meetings or to go to lunch, thereby reducing emissions.

Public Works purchased and installed 40 bicycle racks for community centers, parks, garages, City Hall, the police department and other locations. Each rack holds five to seven bicycles and was purchased with federal transportation funds.

The Bike KC program installed a moving billboard by wrapping an entire KCATA bus with a slogan and design of "Bike There. Walk There." The advertisement reaches 95 percent of the adult population an average of 85 times during the year.

The **Police Department** implemented an Ozone Alert Plan that was disseminated department-wide. On Ozone Alert Days, staff was encouraged to use mass transit or car pool; reduce or eliminate lunch trips; and to refuel in later hours when possible. Facility operations such as mowing, painting, varnishing or other activities were suspended.

The **Water Services Department** implemented its Ozone Reduction Measures plan on Ozone Alert Days. Many ozone reduction practices were implemented throughout the ozone season, such as walking to on-site activities, carpooling to off-site activities, bus riding to and from work, shift changes to avoid rush-hour traffic, and use of alternative fuels. The percentage of alternative fueled vehicles continues to increase each year as older vehicles are retired. Additionally, contracts for mowing services restrict mowing on orange alert days to before 11 a.m. and after 7 p.m. For red alert days, mowing at any time is considered a breach of contract and the contractor will not be paid.

During FY12, Water Services conducted the following activities on Ozone Alert Days:

| 197 | vehicle trips avoided or postponed |
|-------|--|
| 602 | fueling activities avoided or postponed |
| 1,568 | hours of engine idling avoided |
| 5,031 | miles alternative fuel vehicles traveled |
| 50 | lane closures postponed (to prevent traffic backups) |
| 52 | building thermostats set warmer |
| 139 | gallons of solvent use avoided |
| 37 | mowing and small engine use avoided or postponed |

Goal 4 – Incorporate green solutions, whenever possible and appropriate, during the planning process into City policies, projects and programs.

Green Solutions – On Aug. 9, 2007, the City Council adopted Resolution No. 070830. The resolution established the policy of the City to integrate green solutions protective of water in our City planning process and into City policies, projects and programs. Green solutions are strategies that result in on-the-ground projects, which are specifically designed to reduce storm water runoff, reduce water pollution, create recreational amenities, and protect our natural resources through the use of "green infrastructure" such as rain gardens, bio-retention facilities, stream restoration, stream buffers and other scientifically-proven methods. Green solutions also include measures such as energy efficiency, renewable energy, solid waste recycling, mass transit, bike/pedestrian infrastructure, stream buffers, and others that reduce greenhouse gas emissions and improve environmental quality.

Because of the City Council's adoption of the Green Solutions Policy in 2007, the city manager adopted AR 5-5, which formed the interdepartmental Green Solutions Steering Committee (GSSC). The GSSC comprises several City department directors and the City's chief environmental officer. The GSSC works to integrate the variety of "green" and sustainability initiatives in the City into a cohesive plan of operations and to identify and prioritize the primary areas needing policy or regulatory adjustment to support a greener approach.

In addition to the GSSC, four staff-level Green Teams were created to address the various issues surrounding green solutions. The four teams include: Green Infrastructure; Resource Management; Regulation and Policy; and Education and Outreach. These four teams work to develop strategies to incorporate green solutions into City policies and procedures and make recommendations to the GSSC for their approval or recommendation to the city manager for adoption or consideration.

In September 2011, the City hosted a second annual Green Fair. There were approximately 650 participants from more than 40 different organizations. The exhibitors shared information on recent projects and programs that incorporate sustainability and participants had the opportunity to tour the adjacent JE Dunn LEED-certified office building and the George E. Wolf Parking garage, which showcased both installed solar panels and wind turbines.

Additional achievements of the Green Teams included:

- Provided a webcast to City employees on how to improve energy efficiency in their homes:
- On Earth Day 2012, the promoted a "Plastic Bag Free" collection event. During a four-hour period 1,248 reusable grocery bags were handed to residents in exchange for plastic bags. Approximately 13,900 plastic bags were collected during this event.

Additional activities completed in the pursuit of goal 4 include:

The **Aviation Department** has nearly completed renovation of the field maintenance facility to LEED Silver standard. Improvements made to the facility include:

- Ground Source Heat Pumps for HVAC and Water Heating (Geothermal Wells)
- Natural day lighting
- Erosion control during construction
- Occupancy sensors
- Efficient lighting systems
- Low volatile organic compounds products, VOC (eliminates odors due to painting and other related products)
- Low flow toilet fixtures
- Recycled material in the toilet partitions, insulation, countertops and recycled concrete aggregate

- Recycled steel in primary and structural elements
- R-20 translucent wall panels (Nano Gel)
- Bio based spray foam wall insulation (sound and insulation)
- Certified forest recycled plywood
- HVAC and electrical system commissioning
- Clean construction environment
- Parking amenities for alternative fueled vehicles
- Access to public transportation
- Construction waste management
- Re-use of an existing building
- Use of products within 500 miles of project site

The **Capital Projects Department** completed design and construction of Fire Station 39. The new fire station incorporates several sustainable technologies and is designed to LEED Silver standard. A few of the sustainable elements include:

- High efficiency split air conditioning systems;
- Installation of dual flush toilets for 1.6 gpf for high flow and 1.1 gpf for low flow;
- Use of occupancy sensors in public areas, dayrooms, kitchen, restrooms and closets;
- Use of NRG exterior building material, which reduces environmental and economic impacts associated with excessive energy use; and
- Consideration for alternative transportation, providing options for visitors to utilize different modes of transportation including bus routes and onsite bicycle racks.

The **Finance Department** has incorporated green solutions into its payment process. The Automated Clearing House (ACH) reduces the number of paper checks printed. Approximately 90 percent of the City's payroll and 100 percent of the Police department's payroll are handled via direct deposit. The ACH is also available to City vendors.

The department also encourages taxpayers to use the e-filing systems available to them. In calendar year 2011, more than 100,000 tax returns, including return information, were filed electronically (earnings tax withholding, wage earner taxes, hotel motel/restaurant taxes, and employer W-2 submissions).

The **General Services Department** took the following actions to achieve this goal:

- The Facilities Division has been represented during construction planning to offer suggestions for plant materials that are even lower maintenance and require less water than some of the previously specified materials.
- The Fleet Division has a program to use a number of remanufactured parts, which requires less energy than the manufacture of new parts. Using remanufactured parts

extends the life of existing equipment and keeps old parts from piling up in landfills. Remanufactured parts used include: alternators, starters, water pumps, wiper motors, window lift motors, brake shoes, steering pumps and radiators.

• The Fleet Division recycles all shipping/receiving cardboard. Approximately 8,463 pounds of cardboard were recycled.

The **Health Department** has partnered with City Planning to assure that environmental improvement considerations are included in City area plans. Housing development setbacks from roadway corridors, bike trails, and other environmental considerations are being included in future use planning to improve the environment and quality of life for residents.

Information and Technology Department looked for technology solutions that could assist the City in implementing paperless solutions along with systems that allow processes to reduce the use of gas such as GPS and mobile apps.

The **Law Department** issued emails concerning elevated ozone events. These notices include ways to avoid contributing to the ozone problem, such as carpooling, fueling in the morning or after the sun sets, and rescheduling meetings when possible. The department continued to assist City staff by interpreting the LEED ordinance and providing LEED-related legal advice. The department participated in the City Hall recycling program, with every desk having a blue recycling bin. Finally, the department copiers were default set to print and copy double-sided in an effort to conserve resources.

Neighborhood and Community Services has converted to an almost "paperless" work force in Neighborhood Preservation. Paper use has been reduced 10 percent, which has reduced cost in paper and printer supplies.

Parks and Recreation: Construction projects managed through the Park Planning and Design Division regularly incorporate erosion control measures to protect water quality and prevent soil erosion during construction. Projects usually include landscaping and grading to slow and cleanse storm water runoff wherever possible.

The Blue River Channel Mitigation project used native plantings at Byram's Ford Battlefield to mitigate the channelization of the Blue River between 63rd Street and Blue Parkway.

At The Bay Water Park and Ballfield Complex native plants were used for the landscaping and permeable pavement for some of the parking.

Parks and Recreation, in partnership with Green Works in KC, has created a public service announcement on the City's website entitled "Do the Right Thing; Choose the Right Bin" to encourage recycling in the community centers.

The **Public Works Department** staff completed an Active Living Review of the Development Code to determine the compatibility of the code with the creation of areas that support physical activity. The new code consolidates all land development regulations into a single document and contains new and modified regulations. Staff completed the review with support from the Energy Efficiency and Conservation Block Grant (EECBG) Committee, City Planning and Development and consultants. The report highlights best practices in the new zoning code as well as establishes priority recommendations for changes in the new code as well as other city policy documents. Staff also assisted in completing a sustainability guide for new developments that incorporates active living concepts. Public Works staff actively reviews all new development projects for inclusion of bicycle parking per the new development code requirements, as well as any requirements relating to the Bike KC and Trails KC plans. Public Works staff assisted in updating the zoning code to allow for the provision of bicycle sharing within the public right-of-way.

Through various organic collection programs including residential curbside collection, drop-off centers, special neighborhood collection events, and collection at the City Market, the department recycled 18,636 tons of material consisting of food and yard waste.

The **Water Services Department** strives to incorporate green solutions in all of its engineering projects. However, the majority are contained within the Overflow Control Program. Refer to the Annual Overflow Control Program Report for details.

Goal 5 – Protect employee health and the environment by ensuring that training requirements for individuals are identified; that training opportunities are made available and are carried out; that training is recorded and tracked; and that training requirements are monitored, revised, and refresher training provided, as appropriate, to maintain competence.

The **Aviation Department** completed an annual in-house asbestos training and participates in training activities coordinated through OEQ.

The **Capital Projects Department** (**CPD**) sent several employees to environmental and sustainable training opportunities offered outside the usual environmental training program offered by OEQ.

The Conventions and Entertainment Facilities Department completed annual parts washer training, tornado and emergency evacuation training, and fire extinguisher training.

The **Fire Department** - During the year numerous CTU's are given to personnel concerning the handling, containment and proper disposal of hazardous material. Included in the training is the need of personal protective equipment including clothing and SCBA's. The Fire Academy is responsible for dissemination of printed material, providing hands on training and documentation of attendance.

The General Services Department completed the following activities:

- The Facilities Services division took "the point" in developing Spill Containment and Prevention training and updating the written plans for numerous fuel sites in Kansas City. General Service's staff conducted annual training for more than 40 employees in General Services and the Fire Department.
- 100 percent of the Fleet Division employees have ETPs submitted and training is current.

The **Health Department** provides routine environmental training as part of competency requirements for staff operations. Environmental and safety training are provided as part of an annual "Spring Training," in which multiple topics are provided in a focused way.

The **Human Resources Department** coordinated the Wellness Program. Employees are encouraged to attend and participate in wellness classes, complete the annual health risk assessment and join the fitness center.

The **Information Technology Department** reminded its employees of training opportunities and made required courses part of an employee's performance measures.

The **Law Department** did not have individuals who required ongoing or regular environmental training renewals. However, the department took steps to ensure that new employees have up to date (real time) ETPs (environmental training plans) and have completed all required training.

Neighborhood and Community Services field staff took part in a defensive driving class. All employees have an Environmental Training Plan (ETP) and all employees are encouraged to participate in continuing education or City training classes. The department received an award from the Training and Education Division for the amount of participants and hours completed during FY12.

Parks and Recreation Department – In addition to regular training, 20 Parks and Recreation employees attended OSHA safety training through Risk Management, and approximately 10 attended a class on Hazardous Materials Handling and five attended a Hazard Communication course.

Public Works Department - The safety officer for the Solid Waste Division continues to work with employees to ensure and complete all training as listed on their individualized Environmental Training Plans. Employees are provided monthly training, whenever applicable and encouraged to wear appropriate protective gear at all times.

The **Water Services Department's** Safety Division tracks and provides safety training to Water Services employees. For the most part, the Office of Environmental Quality handles the environmental training for the department. However, some coordination occurs between the Office of Environmental Quality and the Environmental Compliance Engineer for Water Services.

Goal 6 – Create a cleaner City by implementing actions that reduce illegal dumping and improve the City's response to illegal dumping.

Aviation Department – KCAD Airport Police patrol roads routinely. A contractor is hired to pick up illegally dumped items around the airport to reduce the attraction to dump additional materials.

MKC Management collaborates with airport users and tenants to watch for and report any illegal dumping.

The **Capital Project Department (CPD)** incorporated contract specifications to hold contractors accountable for proper disposal of building materials and to discourage illegal dumping.

The City Auditor's Office released a report on City Cleanliness in March 2007, which found that illegal dumping affected resident satisfaction with the cleanliness of streets and public places, along with maintenance and upkeep of housing, commercial property and vacant lots; overgrown vegetation; trash and litter; and water runoff. About 38 percent of residents said they were satisfied or very satisfied with street cleanliness in our 2011 quarterly surveys.

The **General Services Department** has installed additional fencing and cabling to prevent vehicles from entering the area along the 63rd Street and Prospect Avenue to prevent illegal dumping.

The **Health Department** plays an indirect role through its rodent control efforts. When complaints are received, cross-departmental communications are used to remove the rodent problem and to remove the source of the conditions that encourage their presence (litter, garbage, etc.).

In addition, department staff has adopted a portion of State Route 71 and conduct periodic clean up events.

The **Law Department** continued to investigate claims of illegal dumping when referred and prosecuted those responsible.

Neighborhood and Community Services purchased 42 cameras to deploy to try to catch and prosecute illegal dumpers. There are two Code Enforcement Officers who work with neighborhood associations and residents to identify known dump sites where cameras can be placed. The officers also work with eye-witnesses to bring offenders to the Municipal Housing Court.

Parks and Recreation continued working with law enforcement personnel, neighborhood and community groups, other City departments, the City's Illegal Dumping Task Force, and other stakeholders in the multi-faceted effort to address the dumping problem. Department crews

assisted residents and provided support for and participated in neighborhood cleanup days throughout the city. Neighborhood, homeowner and community groups continue assisting the department through the adoption of parks and in patrolling areas where illegal dumping has traditionally occurred. Park crews collected more than 2,000 tons of trash dumped in parks, (including large appliances, household trash, paint and chemicals, and trash in receptacles); and collected and recycled several tons of discarded tires.

Cameras are maintained in 27 locations often used for dumping. The Landscape Inspector and maintenance crews open and track 311 cases on residents who dump bulky items, trash or brush in front of their homes on the boulevards, and also open cases on dead animals, downed or dead trees found in City rights of way.

As in previous years, the department worked with the Missouri Stream Team in the annual Blue River Cleanup. This year 900 volunteers worked in 27 locations along the river from Brush Creek south, removing 70 tons of trash of all types and sizes, and 650 tires. The tonnage of trash collected is down from 90 tons in last year's cleanup. Tires collected also dropped dramatically, from 1,300 last year, an indication that these cleanups are having an effect.

Cliff Drive Recreational Improvements included stone wall repair and higher fencing at an overlook to prevent trash dumping down the hillside, which has been a problem at that location for many years. Trash thrown over the hillside was difficult or impossible to clean up. Now even if dumpers leave trash on the road at the overlook, it is at least easier to collect.

The **Public Works Department** Solid Waste Division collected 101,898 tons of residential trash, 20,646 tons of recyclable materials, 18,636 tons of leaf and brush, 20,583 waste tires, and 51 white goods. Under the Neighborhood Clean-up Assistance Program, Public Works supplied 459 dumpsters to facilitate clean-ups in 185 neighborhoods; hosted three household hazardous waste collection events, and distributed 12,400 blue bags to neighborhood groups to be used for liter control in the public right-of-way and vacant or abandoned lots.

Water Services partnered with the Blue River Rescue Program to remove trash and debris within the Blue River watershed and raise awareness to illegal dumping in the area. The Blue River Rescue program starts at the mouth of the Missouri River and continues upstream into the Swope Industrial Park, covering more than 18 river miles. This year's event was held on March 31, 2012. Twenty-seven sites were cleaned by nearly 900 volunteers. Approximately 70 tons of trash, 650 tires and bushels of invasive honeysuckle were removed. In addition, 230 trees were planted in a vacated roadway area of Coal Mine Road to deter dumping and enhance the environment.

Waterways also worked with Neighborhood and Community Services, General Services and Stormwater Maintenance crews to remove illegal dumping from City properties.

The Household Hazardous Waste (HHW) Program was outsourced to Heritage Environmental in FY12. The program continued to conduct several mobile drop-off events throughout the area and received drop-offs at the facility. Materials received include: automotive fluids, mercury,

household cleaners, poisons (aerosols and non-aerosols), latex paint (re-usable and spoiled), pesticides, batteries (all types), fluorescent lighting wastes, soaps and waxes, flammables (e.g. fuels, solvents), caustics (including acids, bases, liquids, and solids), paint-related materials (oil based paints, PRM, etc.), fertilizers and unknowns. In 2011, HHW collected 1,108,031 pounds of materials, reflected in the chart below. By offering residents an environmentally-safe alternative for disposing of household hazardous materials, less of these materials are subject to illegal dumping, leaking or other release to the environment.

| Delivering Program | Facility (lb.) | Mobile (lb.) | Total Weight (lb.) | percent | Average Per Client (lb.) |
|-----------------------|-------------------|-----------------|--------------------|---------|--------------------------|
| Kansas City | 432,324 | 93,007 | 525,331 | 47.41 | 121.46 |
| Independence | 68,501 | 80,059 | 148,560 | 13.41 | 158.05 |
| Lee's Summit | 7,339 | 4,218 | 11,557 | 1.04 | 139.24 |
| MARC | | | | | |
| Communities | 166,989 | 250,967 | 417,956 | 37.72 | 131.19 |
| Non-Participating | 3,823 | 804 | 4,627 | 0.42 | 171.35 |
| | | | | 100.00 | |
| | 678,976 | 429,055 | 1,108,031 | percent | |

V. Other Significant Accomplishments

In addition to achieving its annual environmental goals, the following were significant City accomplishments completed during FY12:

The Capital Project Department (CPD) accomplished the following during FY12:

- Several employees postponed mowing and refueling their gas tanks on Ozone Alert Days;
- Several employees purchase fresh produce and breads from the local farmer's market;
- North Brighton project Improved stormwater control and installed bicycle lanes and sidewalks:
- North Amity project Improved stormwater control and installed bicycle lanes and sidewalks:
- Front Street project Installed 35 low energy LED streets lights, native vegetation for landscaping, and placed pervious pavement in the Richard L. Berkeley parking area.

The **Fire Department** - In an effort to capture used grease and oils in the preparation of meals at the stations, 55-gallon barrels were delivered to each station. When the barrels are full, the personnel notify a contractor to pick up the used oil and grease which is recycled at no expense to the City.

Recycling of paper products, plastics and other materials was implemented in 2011 in the department and has grown to point that we are looking for larger containers on wheels, which would accommodate the increased efforts to recycle more of the daily waste products.

The General Services Department completed:

- Facility Services assisted in the development and implementation of an Enterprise Sustainability Platform (ESP), which is receiving international recognition as the new standard in facility management, sustainability and energy management.
 - The ESP platform model is being implemented in Montevideo Uruguay and is currently under consideration in several other countries.
 - Facility Services presented Leveraging Technology- KC Enterprise Sustainability Platform at the following conferences
 - International Facility Managers Associated World Conference, Phoenix AZ, October 2011
 - Green Schools Conference, Denver CO, February 2012
 - Archibus Users Conference, Boston MA, March 2012
- The Facilities Department was recognized by the Department of Energy for achieving the Energy Star Rating for City Hall at a score of 92 percent which is quite a feat considering the that the structure is 75 years old! City Resolution # 120414 recognized Facility Services staff for this milestone achievement.
- Facility Services projects were recognized by the KC Industrial Council with three awards for sustainable practices.

The **Law Department** attorneys completed 50 hours of continuing legal education credit and additional outside study specific to environmental law and regulations, as well as sustainability issues during the fiscal year.

The **Parks and Recreation Department** continued to participate in the work of the Wet Weather Community Panel and the Climate Protection Plan, as well as the Green Solutions Committee. As noted above, the department planted 1,000 new trees. The department's Forestry Operations continued work on a number of initiatives that will carry over into FY12 and beyond. Many of these initiatives came from recommendations from the Climate Protection Plan and include: development of a City tree ordinance and urban forestry management plan; planting trees on City-owned/managed vacant lots in the urban core; a partnership with the Heartland Tree Alliance to train volunteer "tree keepers"; and working with Water Services and Forest ReLeaf of Missouri to care for trees planted two years ago at the Birmingham Bio-Solid Treatment Facility.

The **Public Works Department** received a grant from the Mid-America Regional Council, Solid Waste Management District to purchase 25 recycling stations. Each station contains a flag along with four containers, one each for collection of plastic containers and aluminum cans, glass, organics and trash. The recycling stations will be used to facilitate the collection of recyclables at public events.

The department amended Chapter 70 and 64 of the Code of Ordinances, thereby requiring any person obtaining a permit for festivals, neighborhood block parties, parades or street closures in

entertainment districts to collect and manage recyclable materials and trash generated in conjunction with the event.

Water Services Department - The Value Engineering effort on the Blue River between 53rd to 63rd streets and the Blue River Mitigation project at Byrams Ford Civil War battlefield discussed in Goal 2 above, received a 2011 SAVE award. Water Services Department worked closely with the Corps of Engineers to rethink the design in these areas, resulting in a project that met hydraulic control requires, while reducing the environmental impact and saving \$20 million dollars in construction costs.

VI. Conclusions and Recommendations

Concluding the 12th year following adoption of the City's Administrative Regulation 1-19 on Environmental Stewardship, the City continued to make progress in incorporating good environmental stewardship and sustainability into all of its organizational activities.

The City continued to meet its environmental regulatory obligations through implementation of a Citywide Environmental Management System; a proactive facility inspection program; a task specific employee environmental and safety training program; and the dedication of the employees to incorporate environmental stewardship and sustainability into their job tasks. Specific policies and programs implemented this year emphasize the City's commitment toward being a "green" City include the Green Solutions Policy and Administrative Regulation and implementation of the City's Climate Protection Plan.

Specific recommendations for continued improvements in compliance assurance and environmental and safety training include:

- Focus on the completion of the City's environmental compliance obligations in a timely manner. Environmental coordinating managers should take a monthly proactive look at their department's outstanding compliance obligations and work with staff to complete and remove them from the system.
- Maintain a state of preparedness for unannounced regulatory inspections, particularly at construction projects. This should include notification of relevant departmental staff and representatives of the Office of Environmental Quality whenever regulatory agencies visit a City facility.
- Continue to implement a facility-specific self-inspection program and assure that employees performing those inspections are properly trained to identify and respond to potential issues.
- Update Administrative Regulation 1-12 City Standard Erosion and Sediment Control Specification. This administrative regulation should include requirements for staff responsible for construction projects to ensure that training has been

completed, that project sites are in compliance with the City's Municipal Separate Storm Sewer System (MS4) permit and land disturbance permit, and that all required Storm Water Pollution Prevention Plans are in place before work begins onsite.

Employee training needs, identified by the employee's Environmental Training Plans (ETPs), should be fulfilled through increased enrollments and completed classes. This may be accomplished through improving awareness of the training program offered by the Office of Environmental Quality and creating training liaisons in the City's departments. Cooperation of the employees' supervisors will be integral in ensuring employees have access to the training classes.

While ensuring regulatory compliance is maintained, City departments and staff have implemented a variety of "beyond compliance" projects and improvements in energy conservation, xeriscaping, alternative fuel use, tree plantings, native landscaping, sustainable architecture, waste minimization, green purchasing and other climate protection measures.

The following recommendations are suggested for improving the City's environmental performance "beyond compliance" during the coming year:

- Continue aggressive implementation of the 55 greenhouse gas emission reduction measures of the Climate Protection Plan
 - Implementation should be accelerated in addressing a wide range of program elements, including, but not limited to:
 - Reducing overall municipal energy use;
 - Reducing overall use of plastic bottles, including educating City leadership and staff about relative values of City tap water versus bottled water;
 - Expanding municipal and community-wide recycling while training the public to reduce the use of commodities and to reuse them before recycling;
 - Pursuing onsite generation of renewable energy;
 - Widening the group of partners engaged in a broad-based, aggressive education program supporting and promoting green choices;
 - Exploring improvement/upgrade of energy efficiency ordinances, codes and regulations; require targeting the achievement of an Energy Star rating for commercial and residential development;
 - Implementing the City Solid Waste Management Plan;
 - Implementing the citywide bike/pedestrian trails plans;
 - Expanding native landscaping on City property;
 - Expanding the synchronization of traffic signals;
 - Developing a plan to implement a street car system and/or other public transit systems:
 - Implementing the new stream buffer ordinance;
 - Beginning management and reduction of construction and demolition waste;

- Promoting local, state and federal policies that encourage energy efficiency and renewable energy;
- Promoting and looking for funding opportunities for pedestrian and bicycle infrastructure;
- Utilizing federal stimulus and other available funding to implement GHG reduction measures in the City's Climate Protection Plan;
- Partnering with the Mid-America Regional Council (MARC), neighborhood associations and other public/private stakeholders to revitalize the Green Impact Zone; and
- Partnering with public and private sector organizations to implement citywide GHG reduction measures; and
- Expanding the influence and involvement of the Green Solutions Teams in executing daily City operations.
- Continue acquisition of alternative fuel vehicles and examine the feasibility of using electric vehicles in the City fleet. Other strategies to be considered include increasing the fleet's fuel efficiency, decreasing vehicle miles traveled, and eliminating unnecessary vehicle engine idling.
- Continue implementation of the revised LEED ordinance by application of policies and procedures to implement the ordinance and continue training of City staff in doing LEED-related construction projects. The newly-adopted standard for new and renovated City buildings is LEED-Gold. Modify City contracts to include language implementing LEED and Energy Star standards and requirements.
- Implement recommendations embodied in the Green Solutions Policy adopted by City Council. These recommendations include: educating and engaging the public to create community and regional partnerships; enact regulations and create enforcement programs that protect natural resources; create incentives to integrate green solutions into the community; and invest public dollars in green, multi-benefit solutions.

VII. FY13 Annual Environmental Improvement Goals

The following goals have been approved and adopted by the City for FY13, May 1, 2012 to April 30, 2013:

Goal 1 – Improve energy management by increasing energy efficiency in production processes, incorporating energy conservation into facility operations and designs, and using more renewable or sustainable energy resources.

Goal 2 – Demonstrate improvements in preservation and restoration of natural resources and habitats such as wetlands, forests, water bodies and prairies, as well as manage facility properties and buildings to reduce environmental impacts.

- Goal 3 Reduce air emissions from facilities through pollution prevention initiatives and emission control strategies. Reduce air emissions from mobile sources by reducing environmental impacts of shipping and receiving, fleet operations and employee commuting.
- Goal 4 Incorporate green solutions, whenever possible and appropriate, during the planning process into City policies, projects, and programs.
- Goal 5 Protect employee health and the environment by ensuring that training requirements for individuals are identified; that training opportunities are made available and are carried out; that training is recorded and tracked; and that training requirements are monitored, revised, and refresher training provided, as appropriate, to maintain competence.
- Goal 6 Create a cleaner City by implementing actions that reduce illegal dumping and improve the City's response to illegal dumping.